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A reputation system for BitTorrent peer-to-peer file-sharing networks

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A Reputation System for BitTorrent Peer-to-Peer File-sharing Networks

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Dedicated to

My family

Declaration

This is to certify that the work reported in this thesis was done by the author, unless specified otherwise, and that no part of it has been submitted in a thesis to any other university or similar institution.

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Abstract

Over the past few years, Peer-to-Peer (P2P) networks have grown extensively and dramatically changed large-scale file transfer. One of the most popular P2P network is the *BitTorrent* system. BitTorrent can efficiently distribute large files by optimizing the use of network bandwidth and providing scalability. Due to the open and anonymous nature of P2P systems BitTorrent also provides an ideal environment for distribution of malicious, low quality, or doctored information. A number of reputation systems, including P2PRep with its successors XRep and X^2Rep, had been proposed to address security weaknesses of Gnutella P2P file sharing networks. Although it has been claimed that these methods are also applicable to the other file sharing networks, it is not clear how to achieve this task. Moreover, some of the shortcomings of these reputation systems such as online-polling only and cold-start may be exploited by malicious attackers. In this paper, we propose a reputation system, called X^{2BT}Rep, which is an extension of the X^2Rep and for BitTorrent network. We show that the proposed system improves the security and the quality of information distributed over P2P networks.

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Publications

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